

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| Applicant | : | Axel Klatt | | |
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| TC/A.U. | : | 2617 | | |
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SUPPLMENTAL REPLY TO OFFICE ACTION UNDER § 1.116

Sir:

This communication is in response to the April 14, 2010 Final Office Action, please amend the above-identified application as follows:

A listing of the Claims begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claims 1-29 are canceled.

30. (Previously Presented) A method for providing or sharing or jointly using a single mobile radio access network by several mobile radio providers, comprising the steps of providing the single radio access network (9; 12) for joint use by the several mobile radio providers, wherein for differentiating between a plurality of core networks (6, 7; 10, 11) of the different mobile radio providers, a respective identity of the network operator (PLMN identity) is provided in the radio access network to a mobile radio subscriber (UE or MS) by transmitting more than one mobile radio operator identity, PLMN identity, on a single organization channel BCCH; transmitting the more than one PLMN identity in a mobile radio system.
31. (Previously Presented) The method according to claim 30, wherein network elements of the core network (6, 7; 10, 11) required for providing the mobile radio services are separately provided by each of the mobile radio providers.
32. (Previously Presented) The method according to claim 30, wherein network elements of the core network (6, 7; 10, 11) (CN) are used for providing voice connections, whereas other network elements for providing IP connections (packet network) are each provided by the different operators.
33. (Previously Presented) The method according to claim 30, wherein the more than one PLMN identity is transmitted in a single Master Information Block (MIB) or System Information Block (SIB1) on the BCCH of a mobile radio system operating according to

a UMTS standard, or core network information of more than one core network is transmitted in the single Master Information Block (MIB) or the System Information Block 1 (SIB1), or the more than one PLMN identity or core network information is transmitted in a different System Information Block other than the Master Information Block (MIB) or the System Information Block 1 (SIB1) on the BCCH of a mobile radio system operating according to the UMTS standard.

34. (Previously Presented) The method according to claim 30, wherein the more than one PLMN identity is transmitted in a different block other than a System Information Type 3 (SI3) on the BCCH of a mobile radio system operating according to a GSM standard.
35. (Previously Presented) The method according to claim 30, wherein when a connection is requested, the subscriber/the subscriber terminal (13) notifies the radio access network (9; 12) of the different core networks (6, 7; 10, 11) or PLMNs with which the connection is to be set up.
36. (Previously Presented) The method according to claim 30, wherein when a connection is requested, the subscriber/the subscriber terminal (13) notifies the radio access network (9; 12) of the different core networks (6, 7; 10, 11) with which the connection is to be set up, and that this notification occurs with the transmission of the PLMN ID in the RRC CONNECTION REQUEST or the INITIAL DIRECT TRANSFER message in a mobile radio system operating according to a UMTS standard.
37. (Previously Presented) The method according to claim 30, wherein when a connection is requested, the subscriber/the subscriber terminal (13) notifies the radio access network (9; 12) of the different core networks (6, 7; 10, 11) with which the connection is to be set up, and that this notification occurs with the transmission of the PLMN ID in the RRC CONNECTION REQUEST or the INITIAL DIRECT TRANSFER message in a mobile radio system operating according to a UMTS standard, wherein the PLMN identity is provided as MCC + MNC.

38. (Previously Presented) The method according to claim 30, wherein when a connection is requested, the subscriber/the subscriber terminal (13) notifies the radio access network (9; 12) of the different core networks (6, 7; 10, 11) with which the connection is to be set up, and that this notification occurs with the transmission of the network operator ID (PLMN ID) in the RRC CONNECTION REQUEST or the INITIAL DIRECT TRANSFER message in a mobile radio system operating according to a UMTS standard, wherein only a MCC of the PLMN identity is transmitted.
39. (Previously Presented) The method according to claim 30, wherein when a connection is requested, the subscriber/the subscriber terminal (13) notifies the radio access network (9; 12) of the different core networks (6, 7; 10, 11) with which the connection is to be set up, and that this notification occurs with the transmission of the network operation ID (PLMN ID) in the RRC CONNECTION REQUEST or the INITIAL DIRECT TRANSFER message in a mobile radio system operating according to a UMTS standard, wherein the PLMN identity is represented by an integer (1,2, 3...n) or a bit string (e.g., “001”), and the actual PLMN identity is determined from the sequential order of transmission of the different PLMN identities on the BCCH.
40. (Previously Presented) The method according to claim 30, wherein when a connection is requested, the subscriber/the subscriber terminal (13) notifies the radio access network (9; 12) of the different core networks (6, 7; 10, 11) with which the connection is to be set up, and that this notification occurs with the transmission of the network operator ID (PLMN ID) neither in the RRC CONNECTION REQUEST nor the INITIAL DIRECT TRANSFER message in a mobile radio system operating according to a UMTS standard.
41. (Previously Presented) The method according to claim 30, wherein the more than one PLMN ID is transmitted in a System Information Block 1 (SIB1) on the BCCH of a mobile radio system operating according to a UMTS standard or core network information of more than one core network is transmitted within an SIB1.

42. (Previously Presented) The method according to claim 30, wherein a signal represented by a single bit is transmitted on the organization channel (BCCH) of the radio access network (9; 12) to indicate if the radio access network resources administration unit provides the connection request of the subscriber/the subscriber terminal (13) with one of the core networks (6, 7; 10, 11) based on a IMSI of the subscriber terminal (“default” selection based on the subscriber IMSI).
43. (Previously Presented) The method according to claim 30, wherein a signal represented by a single bit is transmitted on the organization channel (BCCH) of the radio access network (9; 12) to indicate if the radio network resources administration unit provides the connection request of the subscriber/the subscriber terminal (13) with one of the core networks (6, 7; 10, 11) based on a IMSI of the subscriber terminal (“default” selection based on the subscriber IMSI), and the “default” signaling is selected based on the IMSI, or the mobile radio network operator ID (e.g., PLMN ID) is transmitted by signaling one bit on the organization channel (BCCH).
44. (Previously Presented) The method according to claim 30, wherein more than one mobile radio network operator ID (PLMN ID) is transmitted to a subscriber terminal (13) in a mobile radio network operating according to a UMTS or GSM standard.
45. (Previously Presented) The method according to claim 30, wherein the additional mobile network operator IDs (PLMN IDs) and hence of network operators, which the subscriber terminal (13) is potentially permitted to use, is transmitted through dedicated signaling between radio access network (9; 12) or core network (6, 7; 10, 11) and the subscriber terminal (13).
46. (Previously Presented) The method according to claim 30, wherein additional PLMN IDs are always transmitted when a subscriber terminal (13) logs on to a mobile radio

network for the purpose of registration, actually uses a service, or indicates its actual location to the mobile radio network.

47. (Previously Presented) The method according to claim 30, wherein additional possible mobile radio network operator IDs are transmitted according to a dedicated network-subscriber terminal relationship or based on a transmission on the organization channel BCCH, and this information is used by the subscriber terminal (13) in such a way that radio access resources of another mobile radio operator can be used in the same way as if they were part of the registered mobile radio network.
48. (Previously Presented) The method according to claim 30, wherein additional possible mobile radio network operator IDs are transmitted according to a dedicated network-subscriber terminal relationship, and following a connection request, a subscriber terminal (13) transmits the network operator ID (PLMN ID) to the radio access network control unit by using the method according to claim 30, and wherein the radio access network control unit provides the corresponding connections to the requested core networks (6, 7; 10, 11) of the mobile radio network operator.
49. (Previously Presented) A system for operating several mobile radio networks, by using the method for providing or sharing or jointly using a mobile radio access network by several mobile radio providers according to claim 30, wherein the mobile radio networks comprise a common radio access network (9; 12) but separate core networks (6, 7; 10, 11).
50. (Previously Presented) The system according to claim 49, wherein that at least one of the mobile radio networks comprises a core network element for CS and PS connections and a radio network control unit, wherein one radio network control unit is connected with more than one respective core network element for CS and PS connections.

51. (Previously Presented) The system according to claim 49, wherein one radio access network (RAN) is connected with more than one SGSN (for the PS domain).
52. (Previously Presented) The system according to claim 49, wherein one radio access network (RAN) is connected with more than one MSC (for the CS domain).
53. (Previously Presented) The method for selecting the core network elements of mobile radio networks according to claim 30, wherein the selection of the PLMN or of these core network elements is based on signaling default (yes or no) the selection by the subscriber terminal (13), based on the signaled PLMN ID.
54. (Previously Presented) The method according to claim 30, wherein the provided single radio access network (9; 12), operates according to a UMTS, CDMA 2000, or GSM standard.
55. (Previously Presented) The method according to claim 32, wherein network elements of the core network (6, 7; 10, 11) (CN) are commonly used for providing voice connections (MSC).
56. (Previously Presented) The method according to claim 46, wherein the service is in the context of a “PDP context activation.”
57. (Previously Presented) The method according to claim 46, wherein the actual location to the mobile radio network is for moving subscriber terminals, through location registration procedures.
58. (Previously Presented) A method for providing or sharing or jointly using a single mobile radio access network by several mobile radio providers, comprising the steps of providing the single mobile radio access network (9; 12) for joint use by several mobile radio providers, wherein for differentiating between a plurality of core networks

(6, 7; 10, 11) of the different mobile radio providers, a respective identity of the network operator (PLMN identity) is provided on a single organization channel BCCH;

transmitting on the single organization channel BCCH more than one PLMN identity in a mobile radio system; wherein when transmitting a connection request to the radio access network (9; 12) the subscriber/the subscriber terminal (13) selects a PLMN identity from the PLMN identities transmitted on the single BCCH channel, with which of the different core networks (6, 7; 10, 11) or PLMNs, respectively, the connection is to be set up, without changing the radio access network (9; 12).

59. (Previously Presented) The method according to claim 30, wherein the more than one PLMN ID is transmitted in a single Master Information Block (MIB) on the BCCH of the mobile radio system operating according to a UMTS standard or core network information of more than one core network is transmitted within the single Master Information Block (MIB).
60. (Previously Presented) The method according to claim 30, wherein the more than one PLMN ID is transmitted in System Information Type 3 (SI3) according to a GSM standard.
61. (Previously Presented) The method according to claim 58, wherein the more than one PLMN ID is transmitted in a single Master Information Block (MIB) on the BCCH of the mobile radio system operating according to a UMTS standard or core network information of more than one core network is transmitted within the single Master Information Block (MIB).
62. (Previously Presented) The method according to claim 58, wherein the more than one PLMN ID is transmitted in System Information Type 3 (SI3) according to a GSM standard.

REMARKS/ARGUMENTS

This communication is in response to the April 14, 2010 Final Office Action. Claims 1-29 were previously canceled, without prejudice. Claims 30-62 remain pending in this application with claims 30 and 58 being the only independent claims. Reconsideration is respectfully requested in view of the arguments presented below.

Claims Not Rejected in View of the Prior Art

Claim 58 was not rejected in view of the prior art. However, claim 58 was indicated on form PTOL/326 as being rejected. Clarification is requested in the next communication.

Prior Art Rejections

Claims 30-41, 44-55 and 57 are rejected as obvious over Kauranen et al. (U.S. Patent Application Publication No.: 2004/0162077) in view of Park et al. (U.S. Patent No. 6,741,868).

Claims 42 and 43 are rejected as obvious over Kauranen et al. in view of Park et al. and Stephenson et al (U.S. Patent No. 6,119,000).

Claim 56 is rejected as obvious over Kauranen et al, in view of Park et al. and Purnadi et al. (U.S. Patent Application Publication No. 2002/0068565).

Claims 59-62 are rejected as obvious over Kauranen et al. in view of Park. et al.

Applicants respectfully traverse the outstanding prior art rejections for at least the reasons discussed below.

Applicants draw the Examiner's attention to the following inadvertent typographical errors in the headings for the prior art rejections which refer by number to the previous prior art references (e.g., US Patent No. 7,236,784 & 7,110,788 in paragraphs 15 & 17) that were withdrawn by the Examiner as failing to predate the effective filing date of the present invention. Specifically, in paragraph 3, based on the detailed claim rejections, claims 30-41, 44-55 and 57 should be rejected as obvious over Kauranen et al. in view of U.S. Patent No.

6,741,868 (Park et al.), not anticipated by Kauranen et al. alone. Also, in paragraph 16 with respect to the rejection of claims 42 and 43 an incorrect publication number is identified for Kauranen et al. and an incorrect patent number is identified for Park et al. Similarly, in paragraph 18 with respect to the rejection of claim 56, the Kauranen et al. patent is again identified by an incorrect publication number. Should the Examiner maintain the prior art rejections, correction of the headings is requested.

Independent Claim 30

Claim 30 calls for “transmitting more than one mobile radio operator identity, PLMN identity, on a single organization channel BCCH.” (emphasis added)

The Examiner maintains that paragraph [0040] of Kauranen et al. teaches this limitation. {April 14, 2010 Final Office Action: p. 2, l. 14 through p. 3, l. 10} Applicants respectfully disagree. Paragraph [0040] reads:

“A network as shown in FIG. 1 may be shared by several operators, for example as shown in FIG. 2. In this case, a common RAN 210 can be shared by three different operators A, B, and C, each operating a Core Network of its own (Core Networks 220, 221, and 222, respectively). All the Core Networks can be connected to the same RNC of the shared RAN. In the network sharing scenario of FIG. 2, the shared RAN 210 may broadcast the PLMN (Public Land Mobile Network) Identity “X” to the terminals, i.e., depending on its capabilities, the terminal may not see the identities of the different Core Network operators. However, it is also possible that the operators have dedicated radio frequencies, whereby they can transmit their own Mobile Network Codes (MNC) on their dedicated carriers.”

(emphasis added)

Clearly, paragraph [0040] is referring to a single (e.g., “the”) PLMN identity “X,” not a plurality of PLMN identities. Additional support is found in the Figure 2 to which paragraph [0040] describes that depicts the shared radio access network 210 belonging to a single network operator “X.” Paragraph [0007] provides still further disclosure for such interpretation by discussing Multi-Operator Core Networks (MOCN) such as the patented system and method wherein “Despite several operators, the user may, depending on his/her terminal capabilities, see the network as a single network, the identity of which is broadcast by the Radio Access Network.” (emphasis added)

Accordingly, Kauranen et al. discloses transmission of only a single PLMN identity, not

“transmitting more than one mobile radio operator identity, PLMN identity, on a single organization channel BCCH,” as called for in claim 30.

Independent Claim 58

Claim 58 specifies “transmitting on the single organization channel BCCH more than one PLMN identity in a mobile radio system.” This limitation is the method counterpart of that previously discussed above with respect to claim 30 and thus patentable over the prior art for at least similar reasons discussed above with respect to claim 30.

In addition, method claim 58 is further distinguishable over the prior art in that it provides “the subscriber/the subscriber terminal (13) selects a PLMN identity from the PLMN identities transmitted on the single BCCH channel.” (emphasis added)

Thus, in contrast to the claimed invention that expressly calls for the subscriber/the subscriber terminal to make the PLMN identity selection, Kauranen et al. discloses that the RAN selects a Core Network for the user terminal. {paragraphs [0003]; [0017]} Since the selection of a Core Network for the user terminal in Kauranen et al. is determined in the RAN without any indication, whatsoever, from the terminal such selection is random from the possible multiple Core Networks. Specifically, the RAN makes the selection/determination of a user terminal which then forwards the request to one potentially serving Core Network at a time until finding a Core Network able to accept the request. {paragraphs [0003]; [0017]} If the selected PLMN/CN cannot serve the user, the CN informs the RAN, which then re-routes the initial message to another PLMN/CN to try if this can serve the user in question. {Paragraphs [0012]; [0017] & Fig. 3}

In accordance with the present claimed invention, since the subscriber/subscriber terminal itself makes the selection of a PLMN identity from the plural PLMN identities transmitted on the single BCCH channel, the choice of CN is proper without any guessing.

Dependent Claim 32

Claim 32 further specifies “wherein network elements of the core network (6, 7; 10, 11) (CN) are used for providing voice connections, whereas other network elements for providing IP connections (packet network) are each provided by the different operators.” (emphasis added)

In rejecting claim 32 the Examiner states this limitation is taught by reference element numbers 120 and 124 in Figure 1 of Kauranen et al. However, MSC 121 and GGSN 124 in Figure 1 of Kauranen et al. are associated with the same operator (Core network 120), rather than different operators.

Dependent Claims 35-40

Each of claims 35-40 states “the subscriber/the subscriber terminal (13) notifies the radio access network (9; 12) of the different core networks (6, 7; 10, 11) with which the connection is to be set up.” Thus, the subscriber/the subscriber terminal notifies the RAN.

To the contrary, Kauranen et al. discloses just the opposite. That is, the RAN makes the selection/determination of a user terminal which then forwards the request to one potentially serving Core Network at a time until finding a Core Network able to accept the request. {paragraphs [0003]; [0017]}

Dependent Claim 38

Claim 38 is still further distinguishable over the prior art in that it states “wherein when a connection is requested, the subscriber/the subscriber terminal (13) notifies the radio access network (9; 12) of the different core networks (6, 7; 10, 11) with which the connection is to be set up, and that this notification occurs with the transmission of the network operator ID (PLMN ID) in the RRC CONNECTION REQUEST or the INITIAL DIRECT TRANSFER message in a mobile radio system operating according to a UMTS standard, wherein only a MCC of the PLMN identity is transmitted.” (emphasis added)

In rejecting claim 38 the Examiner maintains that this limitation is taught by Kauranen et al. which discloses transmission of either the PLMN (which includes both MMC and MNC) or, alternatively, in the case of operators having dedicated radio frequencies only MNC are transmitted. (Paragraph [0040]) Therefore, Kauranen et al. fails to disclose or suggest only the MCC of the PLMN identity being transmitted, as found in claim 38.

Dependent Claim 39

Aside from the arguments above with respect to claims 35-40, claim 39 is still further

distinguishable over the prior art in that it states “wherein the PLMN identity is represented by an integer (1, 2, 3...n) or a bit string (e.g., “001”), and the actual PLMN identity is determined from the sequential order of transmission of the different PLMN identities on the BCCH.”

Nothing in either Kauranen et al. or Park et al., either alone or in combination thereof teach the PLMN identity being represented as an integer, as called for in claim 39.

Dependent Claim 40

In addition to the arguments discussed above with respect to claims 35-40, claim 40 further provides “wherein when a connection is requested, the subscriber/the subscriber terminal (13) notifies the radio access network (9; 12) of the different core networks (6, 7; 10, 11) with which the connection is to be set up, and that this notification occurs with the transmission of the network operator ID (PLMN ID) neither in the RRC CONNECTION REQUEST nor the INITIAL DIRECT TRANSFER message in a mobile radio system operating according to a UMTS standard.” (emphasis added)

Kauranen et al. in paragraph [0042] calls for initial direct transfer to carry the message from the RAN to the CN. As previously mentioned with regard to the grouping of claims 35-40 above, claim 40 requires just the opposite, that is, the subscriber/the subscriber terminal to notify the RAN. Furthermore, Kauranen et al. discloses the use of “initial direct transfer” for carrying the message, while claim 40 expressly provides that the notification does not occur with the network operator ID in the INITIAL DIRECT TRANSFER message.

Dependent Claim 41

Claim 41 provides “wherein more than one PLMN ID is transmitted in a System Information Block 1 (SIB1) on the BCCH of a mobile radio system operating according to a UMTS standard or core network information of more than one core network is transmitted within an SIB1.” (emphasis added)

Park et al. to which the Examiner refers teaches transmitting the information in the MIB, not the SIB, as in claim 41. (Col. 21, line 66 through Col. 22, 1. 1)

Dependent Claims 42 and 43

Claims 42 and 43 each specify “wherein a signal represented, for example, by a single bit is transmitted on the organization channel (BCCH) of the radio access network (9; 12) to indicate if the radio network resources administration unit provides the connection request of the subscriber/the subscriber terminal (13) with one of the core networks (6, 7; 10, 11) based on a IMSI of the subscriber terminal.” (emphasis added)

The Examiner acknowledges that this limitation is not taught by either Kauranen et al. or Park et al., instead relying on yet a third prior art reference, Stephenson et al. Applicants respectfully disagree. The combination of all three references still does not read on the present claimed invention which calls for “a single bit” based on the IMSI of the subscriber terminal. Stephenson et al. discloses (Col. 8, ll. 8- 21) that the IMSI which is provided to the PLMN ID in the form of a TMSI is a four octet code, not a single bit.

Dependent Claim 46

Claim 46 further specifies “wherein additional PLMN IDs are always transmitted when a subscriber terminal (13) logs on to a mobile radio network for the purpose of registration, actually uses a service, or indicates its actual location to the mobile radio network.” (emphasis added)

Kauranen et al. fails to mention whatsoever additional PLMN ID’s, much less, when such additional PLMN ID’s are to be transmitted. Kauranen et al. (paragraph [0040] to which the Examiner refers) does not disclose when either PLMN ID’s or additional PLMN ID’s are broadcast.

Dependent Claim 53

Claim 53 further provides “wherein the selection of the PLMN or of these core network elements is based on signaling default (yes or no) the selection by the subscriber terminal (13), based on the signaled PLMN ID.” (emphasis added)

Nothing in Kauranen et al. either discloses or suggests selection of the PLMN ID by signaling default (yes or no) the subscriber terminal (13) to include in the selection of PLMN.

Dependent Claims 59 & 61

Claims 59 and 61 each call for “wherein the more than one PLMN ID is transmitted in a

single Master Information Block (MIB) on the BCCH of the mobile radio system operating according to a UMTS standard or core network information of more than one core network is transmitted within the single Master Information Block (MIB).”

Applicants submit that claims 59 and 61 are distinguishable over Kauranen et al. which as discussed above with respect to claims 30 and 58, fails to disclose or suggest transmitting “more than one PLMN identity” or “more than one core network.”

Dependent Claims 60 & 62

Claims 60 and 62 each specify “wherein the more than one PLMN ID is transmitted in System Information Type 3 (SI3) according to a GSM standard.”

The transmission of the system information in Park et al. is in the master information block (MIB) (Col. 21 l. 66 through Col. 22, l. 1), rather than “in System Information Type 3 (SI3) according to a GSM standard,” as called for in claims 60 and 62.

For at least the foregoing reasons, Applicants submit that claims 30-62 are patentable over the prior art of record and requests that the application be passed to issuance.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If entry and consideration of the amendments above requires an extension of time, Applicants respectfully request that this be considered a petition therefor. The Assistant Commissioner is authorized to charge any fee(s) due in this connection to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess, to Deposit Account No. 14-1263.

Respectfully submitted,
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